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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,812	05/13/2005	Kia Silverbrook	MJT006USNP	9048

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393 DARLING STREET
BALMAIN, 2041
AUSTRALIA

EXAMINER	
SOLOMON, LISA	

ART UNIT	PAPER NUMBER
2861	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,812	SILVERBROOK, KIA	
	Examiner	Art Unit	
	Lisa M. Solomon	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/13/2005, 11/13/2006, 3/8/2007.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed May 13, 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5-6, 8, 18-20, 22-23, 25, 35-39, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Weber et al. (6,003,977).

In re claim 1, *Weber et al. (977')* teaches an ink jet printhead (12, Fig. 1) comprising: a plurality of nozzles (16, 116, Fig. 1 and 4) [Column 3 lines 29-31]; and at least one respective heater element (34, 134, Fig. 2 and 4) corresponding to each nozzle (16, 116) [see Fig. 2], wherein each heater element (34, 134) is arranged for being in thermal contact with a bubble forming liquid [Column 3 lines 16-18], each heater element (34, 134) is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form therein a collapsible gas bubble (50, 150, Fig. 2 and 4) having a point of collapse (shown as "X", 156 on Fig. 2 and 4),

thereby to cause the ejection of a drop of an ejectable liquid through the nozzle (16) corresponding to that heater element (34, 134) [Column 4 lines 29-33, See also Fig. 2], and each heater element (34, 134) is configured such that the point of collapse ("X") of a bubble (50, 150) formed thereby is spaced from that heater element (34, 134) [Column 5 lines 37-49].

In re claim 2, *Weber et al. (977')* teaches the printhead (12) of claim 1 being configured to support the bubble forming liquid in thermal contact with each said heater element (34, 134), and to support the ejectable liquid adjacent each nozzle (16, 116) [See Fig. 2].

In re claim 3, *Weber et al. (977')* teaches the printhead (12) of claim 1 wherein the bubble forming liquid and the ejectable liquid are of a common body of liquid [Column 3 lines 27-32, Column 4 lines 29-33].

In re claim 5, *Weber et al. (977')* teaches the printhead (12) of claim 1 wherein each heater element (34,134) is configured such that the point of collapse ("X", 156) of a bubble (50, 150) formed thereby is at a position at which there is no solid material forming part of the printhead (12) [See Figs. 2 and 4].

In re claim 6, *Weber et al. (977')* teaches the printhead (12) of claim 1 wherein each heater element (134, Fig. 4) has parts defining a gap (135, Fig. 4) between them

and is configured such that the point of collapse ("X" or 156, Fig. 4) of a bubble (150, Fig. 4) formed thereby is within the gap (135) corresponding to that heater element (134) [Column 5 line 60-Column 6 line 2].

In re claim 8, *Weber et al. (977')* teaches the printhead (12) of claim 1 wherein each heater element (34, 134) is configured such that an actuation energy of less than 500 nanojoules (nJ) is required to be applied to that heater element (34, 134) to heat that heater element (34, 134) sufficiently to form a said bubble (50, 150) in the bubble forming liquid thereby to cause the ejection of a said drop [Column 5 lines 33-35].

In re claim 18, *Weber et al. (977')* teaches a printer system (10, Fig. 1) incorporating a printhead (12, Fig. 1), the printhead (12) comprising: a plurality of nozzles (16, 116, Fig. 1 and 4) [Column 3 lines 29-31]; and at least one respective heater element (34, 134, Fig. 2 and 4) corresponding to each nozzle (16, 116) [see Fig. 2], wherein each heater element (34, 134) is arranged for being in thermal contact with a bubble forming liquid [Column 3 lines 16-18], each heater element (34, 134) is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form therein a collapsible gas bubble (50, 150, Fig. 2 and 4) having a point of collapse (shown as "X", 156 on Fig. 2 and 4), thereby to cause the ejection of a drop of an ejectable liquid through the nozzle (16) corresponding to that heater element (34, 134) [Column 4 lines 29-33, See also Fig. 2], and each heater element (34, 134) is

configured such that the point of collapse ("X") of a bubble (50, 150) formed thereby is spaced from that heater element (34, 134) [Column 5 lines 37-49].

In re claim 19, *Weber et al. (977')* teaches the system of claim 18 being configured to support the bubble forming liquid in thermal contact with each said heater element (34, 134), and to support the ejectable liquid adjacent each nozzle (16, 116) [See Fig. 2].

In re claim 20, *Weber et al. (977')* teaches the system of claim 18 wherein the bubble forming liquid and the ejectable liquid are of a common body of liquid [Column 3 lines 27-32, Column 4 lines 29-33].

In re claim 22, *Weber et al. (977')* teaches the system of claim 18 wherein each heater element (34,134) is configured such that the point of collapse ("X", 156) of a bubble (50, 150) formed thereby is at a position at which there is no solid material forming part of the printhead (12) [See Figs. 2 and 4].

In re claim 23, *Weber et al. (977')* teaches the system of claim 18 wherein each heater element (134, Fig. 4) has parts defining a gap (135, Fig. 4) between them and is configured such that the point of collapse ("X" or 156, Fig. 4) of a bubble (150, Fig. 4) formed thereby is within the gap (135) corresponding to that heater element (134) [Column 5 line 60-Column 6 line 2].

In re claim 25, *Weber et al. (977')* teaches the system of claim 18 wherein each heater element (34, 134) is configured such that an actuation energy of less than 500 nanojoules (nJ) is required to be applied to that heater element (34, 134) to heat that heater element (34, 134) sufficiently to form a said bubble (50, 150) in the bubble forming liquid thereby to cause the ejection of a said drop [Column 5 lines 33-35].

In re claim 35, *Weber et al. (977')* teaches a method of ejecting a drop of an ejectable liquid from a printhead (12, Fig. 1), the printhead (12) comprising a plurality of nozzles (16, 116, Figs. 1 and 4) and at least one respective heater element (34, 134, Figs. 1 and 4) corresponding to each nozzle (16, 116) [Column 3 lines 29-31, See Fig. 2], the method comprising the steps of: heating at least one heater element (34, 134, Fig. 1 and 4) corresponding to a nozzle (16, 116) so as to heat at least part of a bubble forming liquid which is in thermal contact with the at least one heated heater element (34, 134) to a temperature above the boiling point of the bubble forming liquid [Column 3 lines 16-18, Column 4 lines 16-18]; generating a collapsible gas bubble (50, 150, Figs. 2 and 4), having a point of collapse ("X" or 156 as shown on Figs. 2 and 4), in the bubble forming liquid by said step of heating [Column 4 lines 29-33], such that the point of collapse ("X" or 156) is spaced from the at least one heated heater element 934, 134) [Column 5 lines 37-49]; and causing the drop of ejectable liquid to be ejected through the nozzle (16, 116) corresponding to the at least one heated heater element (34, 134) by said step of generating a gas bubble (50, 150) [Column 4 lines 31-33].

In re claim 36, *Weber et al. (977')* teaches the method of claim 35 comprising, before said step of heating, the steps of: disposing the bubble forming liquid in thermal contact with the heater elements (34, 134) [See Fig. 2]; and disposing the ejectable liquid adjacent the nozzles (16,116) [See Fig. 2]

In re claim 37, *Weber et al. (977')* teaches the method of claim 35 wherein the bubble forming liquid and the ejectable liquid are of a common body of liquid [Column 3 lines 27-32, Column 4 lines 29-33].

In re claim 38, *Weber et al. (977')* teaches the method of claim 35 wherein the step of generating a gas bubble (50, 150) comprises generating the gas bubble (50, 150) such that its point of collapse ("X" or 156) is at a position at which there is no solid material of the printhead (12) [See Figs. 2 and 4].

In re claim 39, *Weber et al. (977')* teaches the method of claim 35 wherein each heater element (134) has parts defining a gap (135, Fig. 4) between them and the step of generating a gas bubble (150) comprises generating the gas bubble (150) such that its point of collapse ("X" or 156) is within the gap (135) corresponding to the heated heater element (134) [Column 5 line 60-Column 6 line 2].

In re claim 41, *Weber et al. (977')* teaches the method of claim 35 wherein said step of heating at least one heater element (34, 134) is effected by applying an actuation energy of less than 500 nJ to each such heater element (34, 134) [Column 5 lines 33-35].

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 7, 11, 14-15, 17, 24, 28, 31-32, 34, 40, 44, 47-48, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. (6,003,977) in view of Kubby et al. (5,706,041).

In re claim 7, *Weber et al. (977')* teaches the printhead of claim 1 [see rejection above]. However, Weber et al. (977') does not teach wherein each heater element is in the form of a suspended beam, arranged for being suspended over at least a portion of the bubble forming liquid so as to be in thermal contact therewith.

Kubby et al. (041') teaches wherein each heater element is in the form of a suspended beam, arranged for being suspended over at least a portion of the bubble forming liquid so as to be in thermal contact therewith [Column 3 lines 25-31; 50-61; 64-Column 4 line 4].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element to be in the form of a suspended

beam, suspended over at least a portion of the bubble forming liquid so as to be in thermal contact therewith as taught by Kubby et al. (041') in the printhead of Weber et al. (977') for the purposes of increasing the overall heat-transference efficiency of the printhead [Kubby et al. (041') Column 5 lines 13-18].

In re claim 11, *Weber et al. (977')* teaches the printhead of claim 1 [see rejection above]. However, Weber et al. (977') does not teach wherein each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that element.

Kubby et al. (041') teaches wherein each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that element [Column 4 lines 23-26; 44-50].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element to have two opposite sides and to be configured such that a gas bubble is formed at both sides of the heater element as taught by Kubby et al. (041') in the printhead of Weber et al. (977') for the purposes of dissipating heat upward and dissipating heat downward [Kubby et al. (041') Column 4 lines 50-52].

In re claim 14, *Weber et al. (977')* teaches the printhead (12) of claim 1 comprising a plurality of nozzle chambers (26, Fig. 2), each corresponding to a respective nozzle (16), and plurality of heater elements (34) being disposed within each

chamber (26) [Column 3 lines 25-32; 40-41, See also Fig. 2]. However, Weber et al. (977') does not teach the heater elements within each chamber being formed on different respective layers to one another.

Kubby et al. (041') teaches the heater elements within each chamber being formed on different respective layers to one another [Column 4 lines 23-32; 44-50].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the heater elements within each chamber being formed on different respective layers to one another as taught by Kubby et al. (041') in the inkjet printhead of Weber et al. (977') for the purposes of facilitating a more compact and fluidically efficient chip design [Kubby et al. (041') Column 5 lines 18-25].

In re claim 15, *Weber et al. (977')* teaches the printhead of claim 1 [see rejection above]. However, Weber et al. (977') does not teach each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50.

Kubby et al. (041') teaches each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50 [Column 4 lines 35-50, See also Fig. 4].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50 as taught by Kubby et al. (041') in the prithead of

Weber et al. (977') for the purposes of creating the heating element [Kubby et al. (041') Column 3 lines 58-61, Column 4 lines 44-50].

Note: Polysilicon is a material constituted of silicon crystals and that a property of silicon is that it has an atomic number of 14.

In re claim 17, *Weber et al. (977')* teaches the printhead of claim 1 [see rejection above]. However, Weber et al. (977') does not teach wherein each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless.

Kubby et al. (041') teaches wherein each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless [Column 4 lines 38-43].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a conformal protective coating substantially coating each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless as taught by Kubby et a. (041') in the printhead of Weber et al. (977') for the purposes of providing protection of corrosion by the ejectable liquid [Column 4 lines 15-17].

In re claim 24, *Weber et al. (977')* teaches the printhead of claim 18 [see rejection above]. However, Weber et al. (977') does not teach wherein each heater element is in the form of a suspended beam, arranged for being suspended over at least a portion of the bubble forming liquid so as to be in thermal contact therewith.

Kubby et al. (041') teaches wherein each heater element is in the form of a suspended beam, arranged for being suspended over at least a portion of the bubble forming liquid so as to be in thermal contact therewith [Column 3 lines 25-31; 50-61; 64-Column 4 line 4].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element to be in the form of a suspended beam, suspended over at least a portion of the bubble forming liquid so as to be in thermal contact therewith as taught by Kubby et al. (041') in the printhead of Weber et al. (977') for the purposes of increasing the overall heat-transference efficiency of the printhead [Kubby et al. (041') Column 5 lines 13-18].

In re claim 28, *Weber et al. (977')* teaches the printhead of claim 18 [see rejection above]. However, Weber et al. (977') does not teach wherein each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that element.

Kubby et al. (041') teaches wherein each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that element [Column 4 lines 23-26; 44-50].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element to have two opposite sides and to be configured such that a gas bubble is formed at both sides of the heater element as taught by Kubby et al. (041') in the printhead of Weber et al. (977') for the purposes of dissipating heat upward and dissipating heat downward [Kubby et al. (041') Column 4 lines 50-52].

In re claim 31, *Weber et al. (977')* teaches the printhead of claim 18 comprising a plurality of nozzle chambers (26, Fig. 2), each corresponding to a respective nozzle (16), and plurality of heater elements (34) being disposed within each chamber (26) [Column 3 lines 25-32; 40-41, See also Fig. 2]. However, Weber et al. (977') does not teach the heater elements within each chamber being formed on different respective layers to one another.

Kubby et al. (041') teaches the heater elements within each chamber being formed on different respective layers to one another [Column 4 lines 23-32; 44-50].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the heater elements within each chamber being formed on different respective layers to one another as taught by Kubby et al. (041') in the inkjet printhead of Weber et al. (977') for the purposes of facilitating a more compact and fluidically efficient chip design [Kubby et al. (041') Column 5 lines 18-25].

In re claim 32, *Weber et al. (977')* teaches the printhead of claim 18 [see rejection above]. However, Weber et al. (977') does not teach each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50.

Kubby et al. (041') teaches each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50 [Column 4 lines 35-50, See also Fig. 4].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50 as taught by Kubby et al. (041') in the prithead of Weber et al. (977') for the purposes of creating the heating element [Kubby et al. (041') Column 3 lines 58-61, Column 4 lines 44-50].

Note: Polysilicon is a material constituted of silicon crystals and that a property of silicon is that it has an atomic number of 14.

In re claim 34, *Weber et al. (977')* teaches the printhead of claim 18 [see rejection above]. However, Weber et al. (977') does not teach each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless.

Kubby et al. (041') teaches wherein each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless [Column 4 lines 38-43].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a conformal protective coating substantially coating each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless as taught by Kubby et a. (041') in the printhead of Weber et al. (977') for the purposes of providing protection of corrosion by the ejectable liquid [Column 4 lines 15-17].

In re claim 40, *Weber et al. (977')* teaches the method of claim 35 [see rejection above]. However, Weber et al. (977') does not teach wherein each said heater element is in the form of a suspended beam, the method further comprising, prior to the step of heating at least one heater element, the step of disposing the bubble forming liquid such that the heater elements are positioned above, and in thermal contact with, at least a portion of the bubble forming liquid.

Kubby (041') teaches wherein each said heater element is in the form of a suspended beam [Column 3 lines 25-31; 50-61; 64-Column 4 line 4] and prior to the step of heating at least one heater element, the step of disposing the bubble forming liquid such that the heater elements are positioned above, and in thermal contact with, at least a portion of the bubble forming liquid [Column 5 lines 4-11].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element to be in the form of a suspended beam and prior to the step of heating at least one heater element, the step of disposing the bubble forming liquid such that the heater elements are positioned above, and in thermal contact with at least a portion of the bubble forming liquid as taught by Kubby et al. (041') in the printhead of Weber et al. (977') for the purposes of increasing the overall heat-transference efficiency of the printhead [Kubby et al. (041') Column 5 lines 13-18].

In re claim 44, *Weber et al. (977')* teaches the method of claim 35 [see rejection above]. However, Weber et al. (977') does not teach wherein each heater element has two opposite sides, and wherein, in the step of generating a gas bubble, the bubble is generated at both of said sides of each heater element.

Kubby (041') teaches wherein each heater element has two opposite sides, and wherein, in the step of generating a gas bubble, the bubble is generated at both of said sides of each heater element [Column 4 lines 23-26; 44-50].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide each heater element to have two opposite sides and to be configured such that a gas bubble is formed at both sides of the heater element as taught by Kubby et al. (041') in the printhead of Weber et al. (977') for the purposes of dissipating heat upward and dissipating heat downward [Kubby et al. (041') Column 4 lines 50-52].

In re claim 47, *Weber et al. (977')* teaches wherein the printhead has a plurality of nozzle chambers (26, Fig. 2), each corresponding to a respective nozzle (16) [Column 3 lines 25-32; 40-41, See also Fig. 2]. However, Weber et al. (977') does not teach the method further comprising the step of providing the printhead including forming a plurality of said heater elements in each chamber, such that the heater elements in each chamber are formed on different respective layers to one another.

Kubby (041') teaches the method further comprising the step of providing the printhead including forming a plurality of said heater elements in each chamber, such that the heater elements in each chamber are formed on different respective layers to one another [Column 4 lines 23-32; 44-50].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the step of forming the heater elements in each chamber such that the heater elements within each chamber being formed on different respective layers to one another as taught by Kubby et al. (041') in the inkjet printhead of Weber et al. (977') for the purposes of facilitating a more compact and fluidically efficient chip design [Kubby et al. (041') Column 5 lines 18-25].

In re claim 48, *Weber et al. (977')* teaches the method of claim 35 [see rejection above]. However, Weber et al. (977') does not teach the step of providing the printhead wherein each heater element is formed of solid material more than 90% of which, by

atomic proportion, is constituted by at least one periodic element having an atomic number below 50.

Kubby (041') teaches the step of providing the printhead wherein each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50 [Column 4 lines 35-50, See also Fig. 4].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the step wherein each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50 as taught by Kubby et al. (041') in the prithead of Weber et al. (977') for the purposes of creating the heating element [Kubby et al. (041') Column 3 lines 58-61, Column 4 lines 44-50].

Note: Polysilicon is a material constituted of silicon crystals and that a property of silicon is that it has an atomic number of 14.

In re claim 50, *Weber et al. (977')* teaches the method of claim 35 [see rejection above]. However, Weber et al. (977') does not teach the step of providing the printhead, including applying to each heater element substantially to all sides thereof simultaneously, a conformal protective coating such that the coating is seamless.

Kubby et al. (041') teaches the step of providing the printhead, including applying to each heater element substantially to all sides thereof simultaneously, a conformal protective coating such that the coating is seamless [Column 4 lines 38-43].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the step of providing the printhead, including applying to each heater element substantially to all sides thereof simultaneously, a conformal protective coating such that the coating is seamless as taught by Kubby et a. (041') in the printhead of Weber et al. (977') for the purposes of providing protection of corrosion by the ejectable liquid [Column 4 lines 15-17].

Double Patenting

6. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-50 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-50 of prior U.S. Patent No. 6,669,334 Silverbrook. This is a double patenting rejection.

Independent claims of U.S. Patent Application 10/534,812	Independent claims of U.S. Patent No. 6,669,334
1. An ink jet printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble	1. An ink jet printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble

forming liquid to a temperature above its boiling point to form therein a collapsible gas bubble having a point of collapse, thereby to cause the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element, and each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element.	forming liquid to a temperature above its boiling point to form therein a collapsible gas bubble having a point of collapse, thereby to cause the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element, and each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element.
18. A printer system incorporating a printhead, the printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form therein a collapsible gas bubble having a point of collapse, thereby to cause the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element, and each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element.	18. A printer system incorporating a printhead, the printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form therein a collapsible gas bubble having a point of collapse, thereby to cause the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element, and each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element.
35. A method of ejecting a drop of an ejectable liquid from a printhead, the printhead comprising a plurality of nozzles and at least one respective heater element corresponding to each nozzle, the method comprising the steps of: heating at least one heater element corresponding to a nozzle so as to heat at least part of a bubble forming liquid which is in thermal contact with the at least one heated heater element to a temperature above the boiling point of the bubble forming liquid; generating a collapsible gas bubble, having a point of	35. A method of ejecting a drop of an ejectable liquid from a printhead, the printhead comprising a plurality of nozzles and at least one respective heater element corresponding to each nozzle, the method comprising the steps of: heating at least one heater element corresponding to a nozzle so as to heat at least part of a bubble forming liquid which is in thermal contact with the at least one heated heater element to a temperature above the boiling point of the bubble forming liquid; generating a collapsible gas bubble, having a point of

collapse, in the bubble forming liquid by said step of heating, such that the point of collapse is spaced from the at least one heated heater element; and causing the drop of ejectable liquid to be ejected through the nozzle corresponding to the at least one heated heater element by said step of generating a gas bubble.	collapse, in the bubble forming liquid by said step of heating, such that the point of collapse is spaced from the at least one heated heater element; and causing the drop of ejectable liquid to be ejected through the nozzle corresponding to the at least one heated heater element by said step of generating a gas bubble.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 4,794,410 to Taub et al. and U.S. Patent No. 6,447,104 to Keil et al.

Taub et al. (410') and Keil et al. (104') are both cited for their disclosure of the limitations in claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa M. Solomon whose telephone number is (571) 272-1701. The examiner can normally be reached on Monday - Friday from 8:00 am - 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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